

What is Claimed is:

1. An ink composition comprising:  
a stable nonpolyethylene-containing aqueous dispersion of pigment and particles of a urethane polymer.
- 5 2. An ink composition according to Claim 1 comprising a cross-linker capable of cross-linking the urethane polymer.
3. An ink composition according to Claim 1 wherein the pigment comprises a white pigment.
4. An ink composition according to Claim 1 wherein the pigment comprises particles present in least about 1% by weight of the ink composition.
- 10 5. An ink composition according to Claim 1 wherein the ink composition is suitable for use in flexographic printing.
6. An ink composition comprising:  
a stable nonpolyethylene-containing aqueous dispersion of pigment and particles of a urethane polymer and a cross-linker to cross-link the urethane polymer.
- 15 7. A liquid ink composition comprising:  
about 1% to about 60 % by weight of pigment particles based on the total weight of the ink composition; and  
about 5% to about 99% by weight of particles of a urethane polymer based on the total weight of the ink composition.
- 20 8. The ink composition of Claim 7 further comprising less than about 2.5% by weight of a cross-linker based on the total weight of the ink composition, wherein the cross-linker cross-links the polyurethane.
- 25 9. The ink composition of Claim 7 wherein there is about 58% to about 93% by weight of particles of a urethane polymer based on the total weight of the ink composition.
- 30 10. The ink composition of Claim 7 wherein there is about 5% to about 40% by weight of pigment particles and about 58% to about 93% by weight of particles of a urethane polymer based on the total weight of the ink composition.

11. A method for improving durability of an image on a flexible substrate comprising the step of:
- 5 <sup>SUB B1</sup> coating a layer of a urethane polymer containing composition onto a flexible substrate suitable for printing an image wherein the urethane polymer comprises a number average molecular weight in the noncross-linked form of about 1,500 to about 50,000.
12. The method of Claim 11 wherein the urethane polymer-containing composition is an ink composition comprising a dispersion of pigment.
13. The method of Claim 11 wherein the urethane polymer-containing compound further comprises a cross-linker to cross-link the urethane polymer.
- 10
14. The method of Claim 12 wherein the urethane polymer-containing compound is coated onto the flexible substrate prior to printing the image.
- 15 <sup>B</sup> 15. The method of Claim 11 wherein the urethane polymer-containing compound is coated over the image on the flexible substrate.
16. A method for printing an image on a flexible or elastomeric substrate comprising the step of:
- 20 <sup>SUB B2</sup> printing an image using at least one ink composition comprising a stable nonpolyethylene containing aqueous dispersion of pigment and particles of a urethane polymer.
17. The method of Claim 16 further comprising the step of coating a layer of a urethane polymer-containing composition onto the flexible or elastomeric substrate before the printing step.
- 25 18. The method of Claim 16 wherein the urethane polymer comprises a number average molecular weight in the noncross-linked form of about 1,500 to about 50,000.
19. The method of Claim 17 wherein the urethane polymer-containing compound of the coating step further comprises a cross-linker to cross-link the urethane polymer.
- 30 20. The method of Claim 16 wherein the ink composition further comprises a cross-linker to cross-link the urethane polymer.

21. The method of Claim 16 wherein the ink composition is provided in at least one layer of ink in the printed image.

SUB  
B3

22. The method of Claim 16 wherein at least one of the ink composition comprises a dispersion of white pigment.

23. The method of Claim 16 wherein the at least one ink composition comprises at least one layer of ink in the image.

24. The method of Claim 16 wherein the at least one ink composition is in the last ink layer printed in the image.

Sub C3  
10

25. A method for printing an image on an elastomeric substrate comprising the steps of:

printing a first layer of ink onto an elastomeric substrate, the first layer of ink comprising a stable aqueous dispersion of pigment and particles of a urethane polymer; and

15 printing an image over the first layer of ink wherein the last layer of ink, farthest from the substrate, comprises a stable aqueous dispersion of pigment and particles of a urethane polymer.

26. The method of Claim 25 wherein at least one layer of ink is printed using a nonaqueous-based ink.

20 27. The method of Claim 25 wherein the ink composition in the first layer of ink further comprises a cross-linker to cross-link the urethane polymer.

28. The method of Claim 25 wherein the first layer comprises an ink comprising a white pigment.

29. The method of Claim 25 wherein an opaque layer of white pigment is disposed between the first layer of ink and the image.

25 30. The method of Claim 25 wherein the image is printed with an ink composition comprising a stable aqueous dispersion of pigment and particles of a urethane polymer.

30 31. The method of Claim 25 wherein the last layer of ink, farthest from the substrate, further comprises a cross-linker to cross-link the urethane polymer.

32. The method of Claim 25 wherein the image is covered with a coating comprising a backsize or sealer.

33. The method of Claim 25 wherein the sealer is a urethane polymer adhesive.

34. The method of Claim 16 wherein the flexible or elastomeric substrate is formed as a bandage.

35. The method of Claim 34 wherein the bandage comprises the elastomeric substrate and an adsorbent pad.

36. The method of Claim 35 wherein the image is printed over the adsorbent pad.

37. The method of Claim 34 wherein the flexible substrate is selected from a group consisting of polyurethane, elastomeric polyethylene, low density polyethylene and a nonwoven elastomeric web.

38. The method of Claim 16 wherein the elastomeric substrate is formed as a balloon, label, sticker, elastomeric sheet, stretch band, temporary tattoo, or adhesive tape.

39. A method for limiting abrasion of an ink on a flexible substrate comprising the steps of:

applying a composition comprising a water-based dispersion of a urethane polymer to a flexible surface;

printing an image over the composition using at least one ink composition.

40. The method of Claim 39 wherein the composition is an ink composition comprising a stable aqueous dispersion of pigment and particles of a urethane polymer and a cross-linker to cross-link the urethane polymer.

41. The method of Claim 39 wherein the at least one ink composition of the printing step comprises a stable aqueous dispersion of pigment and particles of a urethane polymer and a cross-linker to cross-link the urethane polymer.

42. The method of Claim 39 wherein the printing step is selected from the group consisting of rotogravure printing, flexographic printing and offset printing.

43. The method of Claim 39 wherein the flexible substrate is selected from a group consisting of polyurethane, elastomeric polyethylene, low density polyethylene, and a nonwoven elastomeric web.
44. The method of Claim 39 wherein the composition comprises a water-based pigment.
45. The method of Claim 39 wherein the water-based pigment is a white pigment.
46. An ink composition preparable by combining components comprising a liquid carrier, a water based pigment dispersion and a water-based urethane polymer, wherein the components are sufficiently compatible to form a stable dispersion.
47. The ink composition of Claim 46 further comprising a cross-linker to cross-link the urethane polymer.
48. The ink composition of Claim 46 wherein the urethane polymer comprises a urethane having a number average molecular weight in the noncross-linked form of about 1,500 to about 50,000.
49. An elastomeric bandage comprising a printed image wherein the printed image is prepared from at least one ink composition comprising a stable aqueous dispersion of pigment and particles of a urethane polymer.
50. The elastomeric bandage of Claim 49 wherein the at least one ink composition further comprises a cross-linker to cross-link the urethane polymer.
51. The elastomeric bandage of Claim 49 wherein the bandage further comprises a pad.
52. The elastomeric bandage of Claim 51 wherein the image is printed over the pad.